

Complete Summary

GUIDELINE TITLE

Procedure guideline for bone scintigraphy.

BIBLIOGRAPHIC SOURCE(S)

Donohoe KJ, Brown ML, Collier BD, Carretta RF, Henkin RE, Royal HD, O'Mara RE. Procedure guideline for bone scintigraphy, 3.0. Reston (VA): Society of Nuclear Medicine; 2003 Jun 20. 5 p. [10 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Society of Nuclear Medicine. Procedure guideline for bone scintigraphy, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 25 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

- Neoplastic disease
- Occult fracture
- Osteomyelitis
- Stress reaction/stress fracture
- Avascular necrosis
- Arthritides
- Reflex sympathetic dystrophy
- Bone infarcts
- Bone graft viability

- Otherwise unexplained bone pain
- Distribution of osteoblastic activity before radionuclide therapy for bone pain

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Nuclear Medicine
Oncology
Radiology

INTENDED USERS

Allied Health Personnel
Physicians

GUIDELINE OBJECTIVE(S)

To assist nuclear medicine practitioners in recommending, performing, interpreting, and reporting the results of bone scintigraphy

TARGET POPULATION

Adult and pediatric patients with bone pain or other indications for bone scintigraphy

INTERVENTIONS AND PRACTICES CONSIDERED

Bone scintigraphy:

- Whole-body bone scintigraphy
- Limited bone scintigraphy
- Bone single photon emission computed tomography (SPECT)
- Multiphase bone scintigraphy

MAJOR OUTCOMES CONSIDERED

Sensitivity and specificity of bone scans

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Literature searches were performed. In addition, references known to experts and references from the nuclear medicine community were considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Drafts of the guideline were submitted to members of the Guideline Development subcommittee (methodologists) and the Task Force (subject experts). These reviewers indicated on a line-by-line basis any suggestions or recommendations for the revision of the guideline. The percentage of agreement for all reviewers was calculated for each revision and compiled by the Society of Nuclear Medicine (SNM) central office. It is expected that the percentage of agreement will increase with each revision.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When the Task Force and Guideline Development Subcommittee completed their edits, draft procedure guidelines were distributed to the Society of Nuclear Medicine (SNM) Sample Review Group for comment. (The SNM Sample Review Group is a cross-section of approximately 100 nuclear medicine practitioners representing every field of specialization).

The guideline was approved June 20, 2003 by the SNM Commission on Health Care Policy, the Board of Directors, and the House of Delegates.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Background Information and Definitions

- A. Bone scintigraphy is a diagnostic study used to evaluate the distribution of active bone formation in the body.
- B. Whole-body bone scintigraphy produces planar images of the skeleton, including anterior and posterior views of the axial skeleton. Anterior and/or posterior views of the appendicular skeleton also are obtained. Additional views are obtained as needed.
- C. Limited bone scintigraphy records images of only a portion of the skeleton.
- D. Bone single-photon emission computed tomography (SPECT) produces a tomographic image of a portion of the skeleton.
- E. Multiphase bone scintigraphy usually includes blood flow images, immediate images, and delayed images. The blood flow images are a dynamic sequence of planar images of the area of greatest interest obtained as the tracer is injected. The immediate (blood pool or soft tissue phase) images include one or more static planar images of the areas of interest, obtained immediately after the flow portion of the study and completed within 10 minutes after injection of the tracer. Delayed images may be limited to the areas of interest or may include the whole body, may be planar or tomographic, and are usually acquired 2 to 5 hours after injection. If necessary, additional delayed images may be obtained up to 24 hours after tracer injection.

Common Indications

- A. Neoplastic disease
- B. Occult fracture
- C. Osteomyelitis
- D. Stress reaction/stress fracture
- E. Avascular necrosis
- F. Arthritides
- G. Reflex sympathetic dystrophy
- H. Bone infarcts

- I. Bone graft viability
- J. Otherwise unexplained bone pain
- K. Distribution of osteoblastic activity before radionuclide therapy for bone pain

Procedure

The detailed procedure recommendations in the guideline address the following areas: patient preparation; information pertinent to performing the procedure (i.e., important data that the physician should have about the patient at the time the exam is performed and interpreted); precautions; information regarding the radiopharmaceutical (i.e., ranges of administered activity, organ receiving the largest radiation dose, effective dose), image acquisition; interventions; processing; interpretation criteria; reporting; quality control, and sources of error.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The intent of the procedure guideline is to describe bone scintigraphy in order to maximize the diagnostic information obtained in the study while minimizing the resources that are expended.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The Society of Nuclear Medicine has written and approved guidelines to promote the cost-effective use of high quality nuclear medicine procedures. These generic recommendations cannot be applied to all patients in all practice settings. The guidelines should not be deemed inclusive of all proper procedures or exclusive of other procedures reasonably directed to obtaining the same results. The spectrum of patients seen in a specialized practice setting may be quite different than the spectrum of patients seen in a more general practice setting. The appropriateness of a procedure will depend in part on the prevalence of disease in the patient population. In addition, the

- resources available to care for patients may vary greatly from one medical facility to another. For these reasons, guidelines cannot be rigidly applied.
- Advances in medicine occur at a rapid rate. The date of a guideline should always be considered in determining its current applicability.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb (revised 2003 Jun 20)

GUIDELINE DEVELOPER(S)

Society of Nuclear Medicine, Inc - Medical Specialty Society

GUIDELINE DEVELOPER COMMENT

This guideline has received recognition from the American Medical Association (AMA) for the process of development.

SOURCE(S) OF FUNDING

Society of Nuclear Medicine (SNM)

GUIDELINE COMMITTEE

Guideline Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: Kevin J. Donohoe, MD (Beth Israel Deaconess Medical Center, Boston, MA); Manuel L. Brown, MD (Henry Ford Hospital, Detroit, MI); B. David Collier, MD (Faculty of Medicine, Kuwait University, Kuwait); Robert F. Carretta, MD (Amersham Health, Princeton, NJ); Robert E. Henkin, MD (Loyola University Medical Center, Maywood, IL); Robert E. O'Mara (University of Rochester School of Medicine and Dentistry, Rochester, NY); and Henry D. Royal, MD (Mallinckrodt Institute of Radiology, St. Louis, MO)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the [Society of Nuclear Medicine \(SNM\) Web site](#).

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Society of Nuclear Medicine. Procedure guideline for guideline development. Reston (VA): Society of Nuclear Medicine; 2001 Jun (version 3.0). Electronic copies: Available from the [Society of Nuclear Medicine Web site](#).
- Society of Nuclear Medicine. Performance and responsibility guidelines for NMT. Reston (VA): Society of Nuclear Medicine; 2003. Electronic copies: Available from the [Society of Nuclear Medicine Web site](#).

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PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on May 20, 1999. It was verified by the guideline developer as of May 26, 1999. This NGC summary was updated by ECRI on April 14, 2005.

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